**NGSS—Developing Integrated Instructional Units Using the 5E Instructional Learning Cycle Model**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Topic/Theme: Observing the Moon | | | | | | |
| Performance Expectation(s):  1-ESS1-1. Use observations of the sun, moon, and stars to describe patterns that can be predicted. [Clarification Statement: Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day.] [Assessment Boundary: Assessment of star patterns is limited to stars being seen at night and not during the day.] | | | | | | |
| DCI (Disciplinary Core Ideas:  ESS1.A: The Universe and its Stars: Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. | | | | | | |
| Scientific & Engineering Practices:  1.Planning and Carrying Out Investigations: Make observations (firsthand or from media) to collect data that can be used to make comparisons. 2. Analyzing and Interpreting Data: Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. | | | | | | |
| Crosscutting Concepts:  Patterns: Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. | | | | | | |
| CCSS: W.1.7 Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. RI.1.1 Ask and answer questions about key details in a text. RI.1.7 Use the illustrations and details in a text to describe key ideas. SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media. | | | | | | |
| **Instructional Strategies & Activities**  \*Items that can used for assessment | | | | | | |
| **5E Model** | **Teacher and Student Actions** | **DCI** | **Scientific & Engineering Practices** | **Crosscutting Concepts** | **CCSS** | **Materials & Resources** |
| Engage | What Teacher Does |  |  | Find out what students understand about patterns and patterns in nature. | Share the cover of the book When You Look…  Record student wonderings on the OWL chart | Sci & Chi, 9/2014, Vol 52, Issue 1, pp. 18-23.  When You Look Up at the Moon by Allan Fowler  Chart paper markers or Smart Notebook |
| What Student Does |  |  | Students will brainstorm answers to two questions about patterns. | Kids share wonderings with a partner. |
| Explore | What Teacher Does |  | Share the recording sheet for moon observations.  Send letter home to parents explaining project. | Focus attention on the class journal and have the students examine their journals.  Alternative: Print off moon calendar for current month and previous two months. | Each day talk about what was discovered about the moon. (If the moon was not visible use the app.)  Add observations to OWL chart. | Moon observation journal  When You Look Up at the Moon by Allan Fowler  Use iPad App-Phases of the Moon |
| What Student Does |  | Students keep journal for a month.  Use the collected data to make observations of the moon’s cycle | Students explore the moon calendar and begin noticing how the moon looked each night.  Alternative: Give one month out at a time. Start to notice patterns about the moon’s phases. | After daily discussion add notes to science notebook. |
| Explain | What Teacher Does | Read Phases of the Moon | Ask questions about the different phases  Ask does the moon really change shape? | Ask questions about the different phases  Through discussion begin to understand the moon’s cycle | Ask questions about the different phases  Write the name for each phase on an index card and place on word wall  Record students thinking on OWL chart | Phases of the Moon by Gillia M. Olson  8 black circles cut out of construction paper  white chalk  Index cards  Marker |
| What Student Does | Students use chalk to represent each phase of the moon as it is introduced and discuss what they notice about each phase and repeat the name | Use the Ology web site to look at the phases of the moon. | Use the Ology web site to look at the phases of the moon. | Examine pictures in the book  Discuss with group ideas from book  Add ideas to moon journal |
| Elaborate | What Teacher Does | Introduce the book Faces of the Moon. |  | Refer to word wall | Have students study the cover of the book.  Ask: Why do you think the author used the word faces instead of phases.  Stop and look at the drawings and other information in the book.  Add student ideas to OWL chart | Faces of the Moon by Bob Crelin  Completed moon circles  Long strip of white paper for each child.  OWL chart |
| What Student Does | Students arrange their circle moons in order as each phase is introduced in the story. |  | Students arrange their circle moons in order as each phase is introduced in the story.  Students use appropriate OWL Language | Students listen and ask questions.  Students label the phases of the moon.  Share ideas for the OWL chart |
| Evaluate | What Teacher Does | Read Kitten’s First Full Moon |  |  | Ask questions about the cover and about what the kitten thinks about the moon.  Do you think the book is factual? | Kitten’s First Full Moon by Kevin Henkes  Letter writing paper with space for pictures  Moon Watch Flip Book  <http://www.amnh.org/ology/features/stufftodo_astro/moon.php> |
| What Student Does |  | Examine book for misconceptions | Was there a pattern in the story? | Listen, answer questions and think about what they know about the moon as the book is read.  Write a note to kitten telling her about the moon. |